

REMARKS

Claims 2, 3, 10, 14, 15 and 16 are canceled. Claims 1, 4, 11 and 13 have been amended. Claims 1, 4-9, 11-13 and 17 remain in the application. Support for the amendments to the claims is identified herein. No new matter has been added. This application has been carefully considered in connection with the Examiner's Action. Reconsideration and allowance of the application, as amended, is respectfully requested.

Claim Objections

Claims 1 & 4-9 were objected to because of informalities. By this amendment, claims 1 and 4 have been amended to remove the informalities. For example, in claim 1, the phrase "detection of" has been replaced by "detecting", selection of has been replaced by "selecting", etc. Claim 4 has been similarly amended. Claims 5-9 depend from claim 1, and are believed to contain no informalities. Accordingly, the objection to the claims is believed overcome. Withdrawal of the objection is respectfully requested.

Rejection under 35 U.S.C. §103

Claim 1 recites a method of tracking an instrument that is inserted into the body of a patient, the method comprising the steps of:

- a) detecting a movement signal which represents movement phases of a periodic internal movement of the body, wherein the movement signal comprises both (i) an electrocardiogram movement signal and (ii) a breathing movement signal;
- b) generating 2D images of a body volume of interest, and storing each 2D image in an image database together with (i) associated imaging parameters and (ii) an associated movement phase;
- c) measuring (i) a current spatial position of the instrument and (ii) a corresponding movement phase of the periodic internal movement of the body

comprising (ii)(a) an electrocardiogram movement signal and (ii)(b) a breathing movement signal;

d) selecting at least one 2D image from the image database, wherein selecting the at least one selected 2D image takes place only in response to ascertaining whether its associated movement phase corresponds to the movement phase belonging to the current measured spatial position of the instrument, otherwise the selecting does not take place;

e) determining the position of the instrument on the at least one selected 2D image, wherein determining the position of the instrument on the at least one selected 2D image includes using interpolation to calculate a superposed position of the instrument on the 2D image, and wherein determining further includes compensating for a breathing-induced movement of a given body part within the body volume of interest based on a measured breathing position using a movement model of the body part; and

f) superposing the determined position of the instrument on the at least one selected 2D image.

Support for the amendment to claim 1 (as well as for amendment to claims 4, 11 and 13) can be found in the specification on at least page 3, lines 17-24 of the application as originally filed.

Claims 1, 4-9, 11-13 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Strommer'375 (US2002/0049375 A1) and further in view of Nehrke'115 (US2002/0026115 A1). Applicant traverses this rejection on the grounds that these references are defective in establishing a prima facie case of obviousness with respect to claim 1.

As the PTO recognizes in MPEP § 2142:

... The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie

case, the applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the examiner has not factually supported a prima facie case of obviousness for the following, mutually exclusive, reasons.

1. Even When Combined, the References Do Not Teach the Claimed Subject Matter

The Strommer'375 and Nehrke'115 references cannot be applied to reject claim 1 under 35 U.S.C. § 103 which provides that:

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains ... (Emphasis added)

Thus, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, since neither Strommer'375 nor Nehrke'115 teaches "... **generating** 2D images ... and **storing** each 2D image ... together with (i) associated imaging parameters and (ii) an associated movement phase ... **measuring** (i) a spatial position of the instrument and (ii) a *corresponding movement phase* ... comprising (ii)(a) an electrocardiogram movement signal and (ii)(b) a breathing movement signal ... **selecting** ... wherein *selecting* the at least one selected 2D image *takes place only in response to* ascertaining whether its associated movement phase *corresponds to* the movement phase belonging to the *current measured spatial position* of the instrument, *otherwise* the selecting *does not* take place ..." as is claimed in claim 1, it is impossible to render the subject matter of claim 1 as a whole obvious, and the explicit terms of the statute cannot be met.

Thus, for this mutually exclusive reason, the examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the

rejection under 35 U.S.C. §103 should be withdrawn.

2. The Combination of References is Improper

Assuming, arguendo, that the above argument for non-obviousness does not apply (which is clearly not the case based on the above), there is still another, mutually exclusive, and compelling reason why the Strommer'375 and Nehrke'115 references cannot be applied to reject claim 1 under 35 U.S.C. § 103.

§ 2142 of the MPEP also provides:

...the examiner must step backward in time and into the shoes worn by the hypothetical 'person of ordinary skill in the art' when the invention was unknown and just before it was made.....The examiner must put aside knowledge of the applicant's disclosure, refrain from using hindsight, and consider the subject matter claimed 'as a whole'.

Here, neither Strommer'375 nor Nehrke'115 teaches, or even suggests, the desirability of the combination since neither teaches the specific steps of "... **generating** 2D images ... and **storing** each 2D image ... together with (i) associated imaging parameters and (ii) an associated movement phase ... **measuring** (i) a spatial position of the instrument and (ii) a *corresponding movement phase* ... comprising (ii)(a) an electrocardiogram movement signal and (ii)(b) a breathing movement signal ... **selecting** ... wherein *selecting* the at least one selected 2D image *takes place only in response to* ascertaining whether its associated movement phase *corresponds to* the movement phase belonging to the *current measured spatial position* of the instrument, *otherwise* the selecting *does not* take place ..." as specified above and as claimed in claim 1.

Thus, it is clear that neither patent provides any incentive or motivation supporting the desirability of the combination. Therefore, there is simply no basis in the art for combining the references to support a 35 U.S.C. § 103 rejection.

In this context, the MPEP further provides at § 2143.01:

The mere fact that references can be combined or modified does not

render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

In the above context, the courts have repeatedly held that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination.

In the present case it is clear that the examiner's combination arises solely from hindsight based on the invention without any showing, suggestion, incentive or motivation in either reference for the combination as applied to claim 1. Therefore, for this mutually exclusive reason, the examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn.

Accordingly, claim 1 is allowable and an early formal notice thereof is requested. Dependent claims 4-9 depend from and further limit allowable independent claim 1 and therefore are allowable as well. Withdrawal of the rejection is respectfully requested.

Claim 11 has been amended in a manner similar to that of amended claim 1. For at least the same reasons as presented with respect to claim 1 above, claim 11 is believed *prima facie* allowable. Dependent claim 12 depends from and further limits allowable independent claim 11 and therefore is allowable as well. Accordingly, withdrawal of the rejection and an early formal notice of allowability is respectfully requested.

Claim 13 has been amended in a manner similar to that of amended claim 1. For at least the same reasons as presented with respect to claim 1 above, claim 13 is believed *prima facie* allowable. Dependent claim 17 depends from and further limits allowable independent claim 13 and therefore is allowable as well. Accordingly, withdrawal of the rejection and an early formal notice of allowability is respectfully requested.

Conclusion

Except as indicated herein, the claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or a continuation application.

It is clear from all of the foregoing that independent claims 1, 11 and 13 are in condition for allowance. Dependent claims 4-9 depend from allowable independent claim 1, and are thus also allowable. Dependent claim 12 depends from allowable independent claim 11, and thus is also allowable. Dependent claim 17 depends from allowable independent claim 13, and thus is also allowable.

Amendments herein are fully supported by the original specification and drawings as discussed herein; therefore, no new matter is introduced. Issuance of an early formal notice of allowance of claims 1, 4-9, 11-13 and 17 is requested.

Respectfully submitted,



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